42390P11235

CLAIM AMENDMENTS:

1. (Previously presented) A system comprising:

an interface;

a class configured to implement the interface,

a function, the function being a member of the class and a member of the interface;

an interface vtable comprising a first pointer configured to point to the function;

and

an object, the object being an instance of the class, the object comprising a second pointer configured to point to the interface vtable associated with the interface, the second pointer allowing for efficient casting of references of an interface type into references whose type is defined by the class configured to implement the interface.

2. (Previously presented) The system according to claim 1, wherein
the object comprises a third pointer configured to point to a canonical base address for the object.

3. (Original) The system of claim 2, wherein
the third pointer is located at a predefined offset from the second pointer.

4. (Original) The system of claim 3, wherein
the third pointer is adjacent to the second pointer.

5. (Currently presented) The system according to claim 1, further comprising:
a class vtable comprising a fourth pointer configured to point to the function.

6. (Original) The system of claim 5, wherein
the function has a name, and the class vtable is indexed by the name of the function.

7. (Original) The system of claim 1, wherein
the function has a name, and the interface vtable is indexed by the name of the function.

8. (Previously presented) A method for function dispatch, comprising:
receiving a request to invoke a function, the function being a member of an interface, the function additionally being a member of a class that implements the interface;
receiving a first pointer configured to point to an interface vtable, the interface vtable associated with the interface, an object comprising the first pointer, the object being an instance of the class that implements the interface;
receiving a second pointer configured to point to the function, the interface vtable comprising the second pointer, the second pointer allowing for efficient casting of references of an interface type into references whose type is defined by the class that implements the interface; and
invoking the function.

9. (Original) The method of claim 8, wherein
the function is invoked with the canonical base address of the object as an argument.

10. (Previously presented) An article of manufacture comprising a computer-readable medium having stored thereon instructions adapted to be executed by a processor, the instructions which, when executed, define a series of steps to be used to control a method for function dispatch, said steps comprising:
receiving a request to invoke a function, the function being a member of an interface, the function additionally being a member of a class that implements the interface;
receiving a first pointer configured to point to an interface vtable, the interface vtable associated with the interface, an object comprising the first pointer, the object being an instance of the class that implements the interface;

receiving a second pointer configured to point to the function, the interface vtable comprising the second pointer, the second pointer allowing for efficient casting of references of an interface type into references whose type is defined by the class that implements the interface; and

invoking the function.

11. (Original) The article of manufacture of claim 10, wherein

the function is invoked with the canonical base address of the object as an argument.

12. (Previously presented) A method for casting a reference to an object, comprising:

receiving a first reference configured to refer to an object, the first reference having a type defined by an interface;

receiving a request to cast the first reference to a type defined by a class that implements the interface; and

receiving a pointer, the pointer contained in the object, the pointer configured to point to a canonical base address of the object, the pointer allowing for efficient casting of the first reference.

13. (Original) The method according to claim 12, wherein

the pointer is located at a predetermined offset from a memory location referenced by the first reference.

14. (Previously presented) The method according to claim 12, further comprising:

returning a second reference having a type defined by the class that implements the interface.

15. (Previously presented) An article of manufacture comprising a computer-readable medium having stored thereon instructions adapted to be executed by a processor, the instruction which, when executed, define a series of steps to be used to control a method for casting a reference, said steps comprising:

receiving a first reference configured to point to an object, the first reference having a type defined by an interface;

receiving a request to cast the first reference to a type defined by a class that implements the interface; and

receiving a pointer, the pointer contained in the object, the pointer configured to point to a canonical base address of the object, the pointer allowing for efficient casting of the first reference.

16. (Original) The article of manufacture of claim 15, wherein

the pointer is located at a predetermined offset from the location referenced to by the first reference.